AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1.   (Currently Amended)   A predistortion control device comprising: ~~(1),~~ ~~including~~:

a first predistortion control input selectively connected ~~(10) connectable~~ to a power amplifier output ~~(21)~~;

a second predistortion control input selectively connected ~~(11) connectable~~ to a signal contact ~~(30,31)~~ of a predistortion device ~~(3)~~; and

a predistortion control output selectively connected ~~(12) connectable~~ to a control contact of the predistortion device, the predistortion control device ~~(1)~~ further including:

a cross-correlator device ~~(110)~~ connected with

a first cross-correlator input ~~(1101,1101I,1101Q)~~ to the first predistortion control input ~~(10)~~ and

a second cross-correlator input ~~(1102,1102I, 1102Q)~~ to the second predistortion control input ~~(11)~~, ~~which~~ wherein the cross-correlator device ~~(110)~~ further has a cross-correlator output ~~(1112)~~ ~~(1112)~~ at which a cross-correlation signal can be presented, the cross-correlation signal representing a measured cross-correlation (R m) of signals presented at the first cross-correlator input ~~(1101, 1101I, 1101Q)~~ and the second cross-correlator input ~~(1102,1102I, 1102Q)~~ ;

a predistortion function selector device ~~(120)~~, connected with

a selector input ~~(1210)~~ to the cross-correlator output ~~(1112)~~, and with

a selector output ~~(1211)~~ to the predistortion control output ~~(12)~~, said predistortion function selector device being arranged to compare the measured cross-correlation with a cross-correlation model stored in a memory ~~(122)~~ and determining on the basis of said comparison a suitable predistortion function and presenting a predistortion control signal at said

selector output said predistortion control signal representing said a predistortion function.

2.   (Currently Amended)   The [[A]] predistortion control device (1) as claimed in claim 1, further including a quantiser device (101) connected with a quantiser input to the first predistortion control input, and with a quantiser output to the first cross-correlator input(1101, 1101I, 1101Q).

3.   (Currently Amended)   The [[A]] predistortion control device (1) as claimed in claim 2, wherein the quantiser device (101) is a single-bit quantiser.

4.   (Currently Amended)   The [[A]] predistortion control device (1) as claimed in claim 2 or 3, wherein the quantiser (101) is operable as a sub-sampling device.

5.   (Currently Amended)   The [[A]] predistortion control device (1) as claimed in claim 2 any one of claims 2-4, wherein the cross-correlator device (110) includes a single-bit multiplier (111).

6.   (Currently Amended)   The [[A]] predistortion control device (1) as claimed in claim 2 any one of claims 2-5, further including a distortion device (102) connected with a distortion input to the first predistortion control input, and connected with a distortion output to the quantiser input.

7.   (Currently Amended)   The [[A]] predistortion control device (1) as claimed in claim 6, wherein the distortion device includes a random distortion device.

8.   (Currently Amended)   The [[A]] predistortion control device (1) as claimed in claim 6 or 7, wherein the distortion device includes a periodic distortion device.

9.   (Currently Amended)   The [[A]] predistortion control device ~~(1)~~ as claimed in <u>claim 1</u> ~~any one of the preceding claims~~, wherein the second predistortion control input ~~(11)~~ is connectable to a signal output of a predistortion device.

10.   (Currently Amended)   The [[A]] predistortion control device ~~(1)~~ as claimed in <u>claim 1</u> ~~any one of the preceding claims~~, further including:

an averaging device ~~(112)~~ capable of determining a time averaged cross-correlation value from a memory connected to the cross-correlator output ~~(1112)~~, for storing a number of cross-correlation values, ~~which~~ <u>wherein the</u> averaging device has an averaging output connected to the selector input, for presenting time averaged cross-correlation values to the predistortion function selector device ~~(120)~~.

11.   (Currently Amended)   ~~An assembly of a~~ <u>The</u> predistortion control device<u>, as claimed in claim 1</u> ~~(1) as claimed in any one of claims1-10, and a predistortion device (3) having signal contacts (30,31)~~ <u>further comprising:</u> ~~including~~

a predistortion input ~~(30)~~ for receiving an original signal to be predistorted<u>;</u> ~~and~~

a predistortion output ~~(31)~~ for providing a predistorted output signal based on the original signal, and

a control input contact ~~(32)~~ connected to the predistortion control output ~~(12)~~ at which a predistortion control signal can be provided, in response to which predistortion control signal the predistortion device uses a predistortion function corresponding to the predistortion control signal to generate the predistorted output signal.

12.   (Currently Amended)   ~~An assembly~~ <u>The predistortion control device</u> as claimed in claim 11, further including a power amplifier ~~(2)~~ connected with:

an amplifier input ~~(20)~~ to the predistortion output ~~(31)~~, and

~~with~~ an amplifier output ~~(21)~~ to the first predistortion control input ~~(100.~~

13.   (Canceled)

14. (Currently Amended) A predistortion control method, comprising the steps of: including:

receiving a power amplifier output signal;

receiving a predistortion signal from a signal contact of a predistortion device:

determining a measured cross-correlation value by cross-correlating the power amplifier output signal and the predistortion signal;

comparing the measured cross-correlation value with a [[an]] cross-correlation model;

determining a suitable predistortion function from said comparing step a suitable predistortion function, and

providing a predistortion control signal representing said predistortion function.

15. (Previously Presented) The [[A]] predistortion control method, as claimed in claim 14, further comprising:

minimising a difference between the measured cross-correlation value with a an model cross-correlation value, and

deriving from said minimizing step the predistortion function.

16. (New) An arrangement for controlling predistortion in a power amplifier, the arrangement comprising:

a predistortion control device;

a first predistortion control input selectively connected to a power amplifier output;

a second predistortion control input selectively connected to a signal contact of a predistortion device; and

a predistortion control output selectively connected to a control contact of the predistortion device, the predistortion control device further including:

a cross-correlator device connected with

a first cross-correlator input to the first predistortion control input and

a second cross-correlator input to the second predistortion control input, wherein the cross-correlator device further has a cross-correlator output at which a cross-correlation signal can be presented, the cross-correlation signal representing a measured cross-correlation (Rm) of signals presented at the first cross-correlator input and the second cross-correlator input;

a predistortion function selector device, connected with

a selector input to the cross-correlator output, and with

a selector output to the predistortion control output, said pre-distortion function selector device being arranged to compare the measured cross-correlation with a cross-correlation model stored in a memory and determining on the basis of said comparison a suitable predistortion function and presenting a predistortion control signal at said selector output said predistortion control signal representing said a predistortion function.

17.   (New) The arrangement as claimed in claim 16, further including a quantiser device connected with a quantiser input to the first predistortion control input, and with a quantiser output to the first cross-correlator input.

18.   (New) The arrangement as claimed in claim 16, wherein the quantiser device is a single-bit quantiser.

19.   (New) The arrangement as claimed in claim 17, wherein the quantiser is operable as a sub-sampling device.

20.   (New) The arrangement as claimed in claim 17, wherein the cross-correlator device includes a single-bit multiplier.

21. (New) The arrangement as claimed in claim 17, further including a distortion device connected with a distortion input to the first predistortion control input, and connected with a distortion output to the quantiser input.

22. (New) The arrangement as claimed in claim 21, wherein the distortion device includes a random distortion device.

23. (New) The arrangement as claimed in claim 21, wherein the distortion device includes a periodic distortion device.

24. (New) The arrangement as claimed in claim 16, wherein the second predistortion control input is connectable to a signal output of a predistortion device.

25. (New) The arrangement as claimed in claim 16, further including:
an averaging device capable of determining a time averaged cross-correlation value from a memory connected to the cross-correlator output, for storing a number of cross-correlation values, wherein the averaging device has an averaging output connected to the selector input, for presenting time averaged cross-correlation values to the predistortion function selector device.

26. (New) The arrangement as claimed in claim 16, further comprising:
a predistortion input for receiving an original signal to be predistorted;
a predistortion output for providing a predistorted output signal based on the original signal, and
a control input contact connected to the predistortion control output at which a predistortion control signal can be provided, in response to which predistortion control signal the predistortion device uses a predistortion function corresponding to the predistortion control signal to generate the predistorted output signal.

27. (New) The arrangement as claimed in claim 26, wherein the power amplifier is connected with:

an amplifier input to the predistortion output, and

an amplifier output to the first predistortion control input.